

SMILES ACROSS KANSAS

A SURVEY OF THE ORAL HEALTH OF KANSAS CHILDREN



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SMILES ACROSS KANSAS 2012

A Survey of the Oral Health of Kansas Children

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EXECUTIVE SUMMARY

The 2012 *Smiles Across Kansas* report presents results from the Kansas Basic Screening Survey (also referred to in this report as the *Smiles Across Kansas* survey), a statewide, nationally recognized oral health surveillance of children's oral health. Using a survey protocol designed by the Centers for Disease Control and Prevention (CDC) and the Association for State and Territorial Dental Directors (ASTDD), the survey collects clinical information on caries (tooth decay), dental restorations, and dental sealants. *Smiles Across Kansas* provides oral health advocates, government officials, researchers and policy makers with valuable information about the prevalence of dental decay and preventive services in Kansas children. The survey also contains information on access to dental care, insurance status and information on the frequency of dental visits. The 2012 *Smiles* survey collected information from 2,043 third grade children in sixty-five schools across the state. This report contains the results of the survey, as well as discussion and recommendations of what Kansas should do in the future to impact the oral health status of Kansas children in the future.

Key Findings:

- THE ORAL HEALTH STATUS OF KANSAS CHILDREN IS IMPROVING

Approximately one out of ten Kansas children has untreated, active dental decay. This is a remarkable improvement over the 2004 *Smiles* survey where one out of four children had untreated decay.

- A LARGE NUMBER OF KANSAS CHILDREN STILL EXPERIENCE DENTAL DECAY

Forty-eight percent of Kansas children have decay currently or have had it in the past. In spite of the significant investments in oral health across the state, dental disease is still very common.

- DENTAL SEALANTS ARE UNDERUTILIZED TO PREVENT DENTAL DECAY, ESPECIALLY IN MINORITIES

The placement of dental sealants on permanent molars is an evidence based public health best practice. Fewer than 36% of Kansas children have sealants on their first molars. Even fewer African American and Latino children have sealants.

Recommendations:

- ORAL HEALTH INTERVENTIONS SHOULD FOCUS ON PREVENTION

Although the data suggests that the primary incidence of decay is decreasing and more children are receiving professional care, a large number of children in Kansas still experience dental decay. Preventive interventions such as oral health education, fluoride and sealants can provide the most cost effective, painless and impactful results in reducing dental disease.

- ALL KANSAS CHILDREN SHOULD DRINK WATER FROM FLUORIDATED WATER SYSTEMS

Only 65% of Kansans on community water systems drink optimally fluoridated water. Community water fluoridation provides oral health benefits to all residents drinking the water regardless of age, income and the availability of dental providers. All Kansas children should benefit from this safe and effective oral health intervention.

- SPECIAL EFFORTS SHOULD BE MADE TO REACH OUT TO MINORITY AND UNDERSERVED CHILDREN

Some Kansas children suffer disproportionately from dental disease and a lack of access to preventive care. Targeted interventions like school-based sealant programs, culturally competent education, and outreach for hard to reach populations should be initiated to reduce oral health disparities.

BACKGROUND AND PURPOSE

Monitoring the oral health of Kansans is one of the primary purposes of the Kansas Bureau of Oral Health. Current information about the prevalence of oral disease and its impact on the lives of Kansans is crucial to raise public awareness about the need for good oral health and oral disease prevention. Oral health data drives the creation of new policies and specific interventions. Surveillance also monitors the effectiveness of current programs and identifies if Kansas is trending with local, state and/or national targets. Population level assessment done in regular intervals not only reminds the public of the continued existence of oral diseases, but also creates a statewide evaluation profile that can monitor the impact of oral health policies and programs across the state.

The 2012 *Smiles Across Kansas* (the Kansas Basic Screening Survey) report provides a cross-sectional profile of the oral health status of Kansas' third grade students. Developed by the Association of State and Territorial Dental Directors (ASTDD) and the Centers for Disease Control and Prevention (CDC), the Basic Screening Survey (BSS) utilizes a standardized protocol to collect information on the observed oral health of children. Clinically observed indicators include the presence of untreated caries (cavities), caries experience (treated *and* untreated decay), treatment urgency, and the presence of dental sealants on permanent molars. Third graders are chosen for the Basic Screening Survey because most have newly erupted first permanent molars that can be evaluated for sealant placement. The survey includes information collected through parent/guardian questionnaires on age, gender, race/Hispanic ethnicity and on access to dental care.



Kansas' first *Smiles Across Kansas* survey was completed in 2004.¹ The 2004 data provided a baseline for oral health programs and has been used extensively in Kansas research as well as state and national health assessments. The 2012 *Smiles Across Kansas* survey utilized the same standardized methodology to collect data from a stratified sample of third grade school children in Kansas based on their school's percentage of children enrolled in the National School Lunch program. Neither the Association of State and Territorial Dental Directors (ASTDD) nor the Centers for Disease Control and Prevention Division of Oral Health (CDC) has recommended an ideal interval for collection of child data, and states have not synchronized their efforts to conduct data collection in the same years. Generally states obtain state-specific data every five to 10 years or so.² In Kansas, the Bureau of Oral Health at the Kansas Department of Health and Environment is responsible for the collection, analysis, and reporting of the Basic Screening Survey Data. This data is shared with national partners and can be compared to other states through the National Oral Health Surveillance System.³ The Basic Screening Survey also provides data to measure Kansas' progress on achieving the Healthy People 2020 benchmarks⁴, a set of national objectives designed to improve the health of all Americans.



The 2012 *Smiles Across Kansas* report includes data collected from over two thousand children across the state in the 2011-2012 school year. In addition to comparing the current data to the 2004 data, this report looks at the data in terms of geographical region, race/ethnicity, and free and reduced lunch status (a proxy for parental income). Finally, based on the 2012 survey data, the report will make some recommendations for oral health interventions that could have the most impact on children's oral health in the future.

2012 SMILES ACROSS KANSAS KEY FINDINGS

KEY FINDING #1:

DENTAL DECAY IN KANSAS THIRD GRADERS IS STILL PREVALENT, BUT THE NUMBER OF CHILDREN WITH UNTREATED DENTAL DECAY IS DECREASING

The Basic Screening Survey measures the number of children that have clearly visible dental decay in their permanent and primary teeth. Children with untreated dental decay typically have not had regular preventive or restorative dental care, as dental decay forms gradually. There are many preventive and restorative interventions that could have stopped the identified tooth destruction if the child had been professionally examined prior to *Smiles* survey process.

Percentage of Third Grade Children with Untreated Dental Decay	
2004 Smiles Across Kansas Data	25.1%
Healthy People 2020 Target: Reduce the Proportion of Children Aged 6 to 9 years with Untreated Dental Decay in their Primary and Permanent Teeth	Under 25.9%
2012 Smiles Across Kansas Data	9.4%

The huge improvement in this indicator from the 2004 *Smiles Across Kansas* study is remarkable, and the 2012 data easily achieves the Healthy People 2020 Objective. A close look at the sampling and screener data did not reveal observer error or sampling bias, so the level of decrease in the measure is attributed to the oral health of the children in the sample. In accounting for this amazing progress, it is important to mention the many oral health programs targeting young children and their families, were created and implemented in the last eight years. This work, coupled with environmental changes, health service expansions and positive policy development account for at least some of this improvement.

Although this is extremely good news for children's oral health in Kansas, the statistic needs to be placed in a broader context with the other *Smiles* indicators to be fully understood. The survey also collected the number of children that had treated decay, meaning children that had restorations (fillings) present at the time of the survey. These children have had dental decay, but also have received dental care that treated the disease. Forty-four percent of Kansas third graders had treated decay, indicating that Kansas has made significant improvements in getting children that have decay professional treatment. More treated children along with a reduction in the amount of primary incidence of decay explain the

large reduction in untreated decay in the 2012 data. When you consider the significant resources that Kansas has placed in increasing access to dental services in the last ten years, it is gratifying to see that more children are getting dental care. However, from a public health perspective, it is very important to note that the disease process continues. There is still much work to be done to prevent dental decay from occurring in the first place. Disease prevention is the most cost effective, sustainable and least invasive way to improve oral health. The etiology of the disease process is well understood, and there are safe, inexpensive and painless preventive interventions that are proven to prevent dental decay. The 2012 *Smiles* data confirms that the focus for future oral health interventions must be on prevention.

KEY FINDING #2:

FORTY-EIGHT PERCENT OF CHILDREN IN THIRD GRADE HAVE EXPERIENCED DENTAL DECAY

Dental caries is the infectious disease process commonly known as tooth decay. Caries occurs as a result of complex interactions among intraoral microorganisms, teeth and fermentable carbohydrates. When teeth are in contact with microorganisms and fermentable carbohydrates (especially simple sugars), a cariogenic environment high in acid can be formed. This acidity can demineralize tooth structure which can result in tooth destruction and infection. Caries can be mediated by preventive measures such as good oral hygiene, systemic and topical fluorides that strengthen tooth structures, and dental sealants.

The Basic Screening Survey indicator “caries experience” refers to a child that has either active decay (untreated dental caries) or the presence of restorations (fillings) or both. This measure reflects the presence of dental disease in the child’s life regardless of intervention by a dental professional.

Percentage of Third Grade Children with Dental Caries Experience	
2004 Smiles Across Kansas Data	55%
Healthy People 2020 Target: Reduce the Proportion of Children Aged 6 to 9 years with Dental Caries Experience in their Primary and Permanent Teeth	Under 49%
2012 Smiles Across Kansas Data	48%

In the last eight years, Kansas children have seen a 7% reduction in caries experience. Based on the 2012 data, the state has just barely achieved the Healthy People 2020 objective. While this is noteworthy, it still means that almost half of all children in the state suffer an unnecessary adverse health condition that has lifelong implications. The presence of oral disease in children is a strong indicator for poor oral health in adulthood.⁵ As the disease is almost entirely preventable, continued efforts to decrease this measure can have a lasting impact on the oral health of Kansans.

KEY FINDING #3:

DENTAL SEALANTS CONTINUE TO BE AN UNDERUSED PREVENTIVE TREATMENT

Dental sealants applied to posterior teeth provide a protective coating in the chewing surface's grooves and fissures. This coating prevents decay in the areas of the tooth most susceptible to disease by creating a barrier between the oral bacteria and tooth structure. Dental sealants are low cost, highly effective preventive treatments that can be painlessly placed by dentists and dental hygienists in both the dental office and in community settings in Kansas.

Percentage of Third Grade Children with Sealants on the First Permanent Molars	
2004 Smiles Across Kansas Data	34.2%
Healthy People 2020 Target: Increase the Proportion of Children aged 6 to 9 Years with a Dental Sealant on One or More of their First Molars	28.1%
2012 Smiles Across Kansas Data	35.7%

Kansas has made minimal progress on this measure since the 2004 survey. One way Kansas can increase the number of children with sealants is for dental providers with mobile equipment to go to schools and place sealants on children's teeth during the school day. Since 2010, the Bureau of Oral Health has been working with community health centers and private practitioners to build school sealant programs, but it is too early for this program to impact these survey results. The placement of sealants on children at risk of dental disease is a public health best practice, and needs to be encouraged in both community-based programs and private dental offices.

KEY FINDING #4:

MOST KANSAS THIRD GRADERS HAVE SOME FORM OF DENTAL INSURANCE, AND SEE THEIR DENTIST ANNUALLY

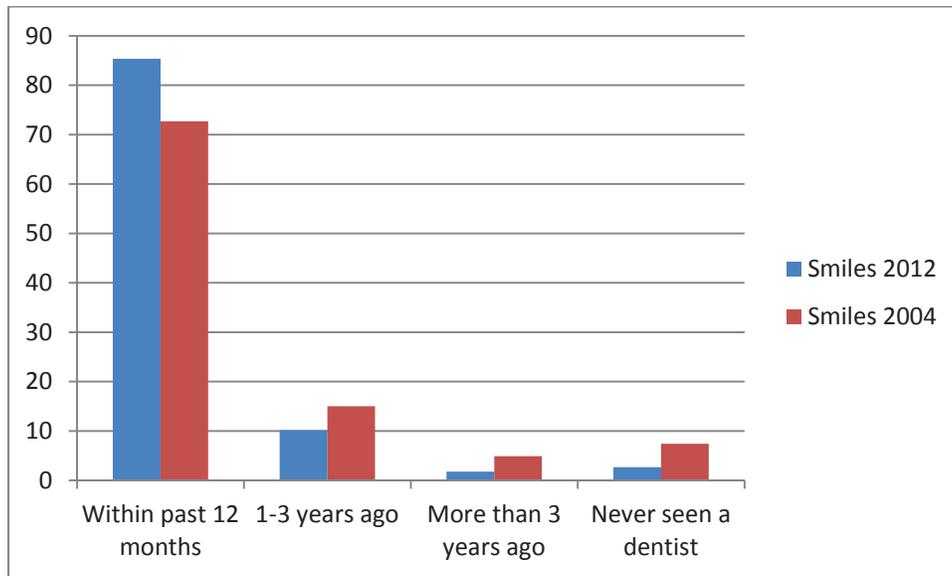
In addition to the oral health screenings, questionnaires were distributed to the parents/guardians to gather information about the child’s insurance status and dental history. A parent/guardian was asked if a child had either private or public (Medicaid/HealthWave) insurance coverage for dental care. The parent/guardian was also asked how recently the child had visited the dentist and what precipitated the dental visit.

Percentage of Third Grade Children with Dental Insurance	
2004 Smiles Across Kansas Data	84.3%
2012 Smiles Across Kansas Data	86.2%
Percentage of Third Grade Children that Have Seen a Dentist in the Last Year	
2004 Smiles Across Kansas Data	72.7%
Healthy People 2020 Target: Increase the Proportion of Children that Used the Oral Health Care System in the Past 12 Months	More than 49%
2012 Smiles Across Kansas	85.4%

The number of families who report that their child has dental insurance has increased, and there has been a corresponding increase in the percentage of children who are reported to have seen their dentist at least once in the past year. Seventy percent of children are reported to have seen their dentist within the past six months indicating that they may be receiving American Academy of Pediatric Dentistry recommended biannual exams. It should be noted that this information data was parent/guardian reported, and it should be looked at with a critical eye. Medical and dental insurance are often confused, and a parent’s memory of when a dentist last saw the child may not be totally accurate. That being said, identical questions were asked in both the 2004 and 2012 surveys, so if there is a bias, it is likely reflected in the data from both years.

There is improvement in these indicators in comparison to the 2004 survey, especially before the Survey in the frequency of dental visits. More children saw a dentist the twelve months, with fewer reporting that it had been more than a year, or that they have never seen a dentist at all.

**PERCENTAGE OF PARENTS/GUARDIANS REPORTING THEIR CHILD HAS SEEN A DENTIST –
COMPARISON OF 2004 TO 2012**



Parents still report that the primary reason for visiting the dental office is that they “went in on their own for a check-up” (81.6 percent in 2012 compared to 72.7 percent in 2004). “Needing treatment” (7.6 percent), “something was wrong” (4.2 percent) and “called in by the dentist for a check-up” (3.6 percent) were the other reasons given for visiting the dentist. As was the case in 2004, the finding that such a high percentage of participants in the *Smiles Across Kansas* report routine contact with a dental office can be viewed as a reflection that these families may have a dental home for their care.

FINDING #5:

SOME CHILDREN CONTINUE TO HAVE DIFFICULTY GETTING DENTAL CARE

Percentage of Parents who Reported Their Child Needed Dental Care But Could Not Get It	
2004 Smiles Across Kansas Data	17%
2012 Smiles Across Kansas Data	8%

Parents and guardians of children in the 2012 survey indicated significantly less difficulty accessing dental care than in the 2004 survey. This is in line with the earlier data indicating that more children with dental disease are receiving treatment.

For those who reported challenges in getting dental care, a follow-up question was asked to characterize the nature of the problem. As was true in 2004, cost issues are the most frequently cited barriers to receiving dental care. Almost seventy-six percent reported that the problem related to the cost of dental services. Specific reasons included a lack of dental insurance and not being able to afford the out-of-pocket costs. Difficulty in accessing care (for example, not speaking English or having Medicaid insurance but not being able to find a dentist that accepts Medicaid) accounted for an additional seventeen percent of the reasons for difficulty in getting needed care.

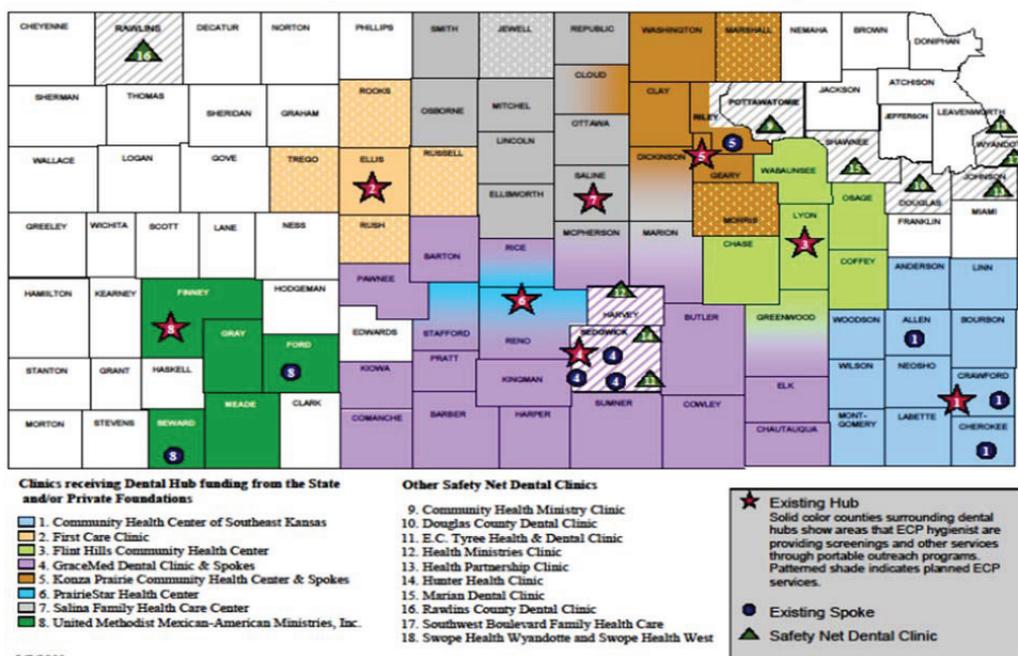
DISCUSSION

The 2012 *Smiles Across Kansas* data clearly reflects statewide oral health improvement since the 2004 survey. Based on the three major clinical indicators, Kansas children have less decay and are receiving more professional dental treatment than they did eight years ago. With respect to national benchmarks, Kansas has already met many of the Healthy People 2020 targets. These results are very good news for the oral health community and a credit to the many professionals who have spent considerable time and effort on oral health improvement projects. In considering these remarkable results, it is relevant to highlight a few of the most impactful oral health projects that were conducted during this timeframe. These are not the only projects that contributed to the *Smiles Across Kansas* results, but they are an excellent demonstration of how a variety of prevention and care strategies, coupled with the state’s commitment to improving access to dental care, can make a difference.

Oral Health Successes: 2004-2012

Dental Hub - The Kansas Dental Hub program⁶ was a public and privately funded initiative to expand the reach of dental clinics in community health centers statewide. Between 2007 and 2011 over six million dollars were provided to health centers who agreed to serve as “hubs”. These clinics provide dental treatment services to the underserved regionally, surrounded by community based hygienist and dentist “spokes” that provide preventive services and referral back to the hub. A primary purpose of the Dental Hub program was to open new access points in underserved communities for oral health care and services. These new dental clinics have undoubtedly increased access for underserved Kansans in need of professional dental care.

KAMU Kansas Safety Net Dental Clinics, Dental Hubs, and Spokes - 2011



Extended Care Permit Dental Hygienists - In 2003, the Kansas legislature passed the “Extended Care Permit”, which allows registered dental hygienists to work in community sites such as schools and nursing homes without the on-site supervision of a dentist.⁷ Currently there are one hundred forty-four hygienists that have Extended Care Permits that primarily work in community health centers, early childhood centers and schools. Although this workforce model continues to be underutilized⁸, these “ECP” hygienists provide the backbone of the Dental Hub spokes and community based prevention projects such as school based sealant programs.

Medicaid Policies to Support Early Childhood Caries Prevention – Preventing dental decay in children should start early, particularly in populations at risk of dental decay. As most children do not actually visit the dentist until they start school, efforts have been made to provide preventive services and education to very young children and their parents in early childhood centers and through pediatric medical providers. To support these efforts, in 2005 Kansas Medicaid began reimbursing local health departments and medical providers who applied fluoride varnish on children during their well child visits.⁹ In 2011, Kansas Medicaid allowed reimbursement for extended care permit hygienists doing caries risk assessment, oral hygiene instruction and toothbrush prophylaxis.¹⁰ These policies encourage physicians who treat Medicaid children to integrate oral health in well baby exams, and also provide financial support for early childhood prevention programs such as Kansas Cavity Free Kids.¹¹

LOVE YOUR SMILE

FLUORIDE VARNISH HELPS PREVENT DENTAL DECAY

- Safe and Effective
- Ages 6 Months to Adult
- "Lift the Lip" Look for White Spots
- Brush and Floss Daily

MEDICAID APPROVED

REMEMBER YOUR CHILD'S TEETH ARE IMPORTANT

Ask Our Staff for Details

Approved by Kansas Department of Health and Environment - Office of Oral Health

School-Based Prevention Programs – Dental sealants prevent dental decay in teeth with deep fissures and grooves, the parts of teeth where 90% of all childhood caries begins. Sealants should be placed on teeth at risk of decay soon after eruption. Children that do not regularly visit the dentist often miss the opportunity for sealant placement, and develop decay in their posterior teeth. In order to reach these children, a public health best practice is to send dental professionals into schools on a regular basis to place sealants and do oral health prevention education. In Kansas, school-based sealant programs have been slow to develop, although extended care permit hygienists can provide the service in schools without the presence of a dentist. In recent years, in conjunction with the dental hub program, many safety net clinics developed school outreach programs that included sealants and fluoride varnish. In 2010 the Bureau of Oral Health received a federal grant to start and maintain school-based sealant programs statewide. Many of the programs are still in their infancy, but this integration of oral health services in educational settings has great potential to reduce dental decay in targeted underserved children at risk of dental disease across Kansas.

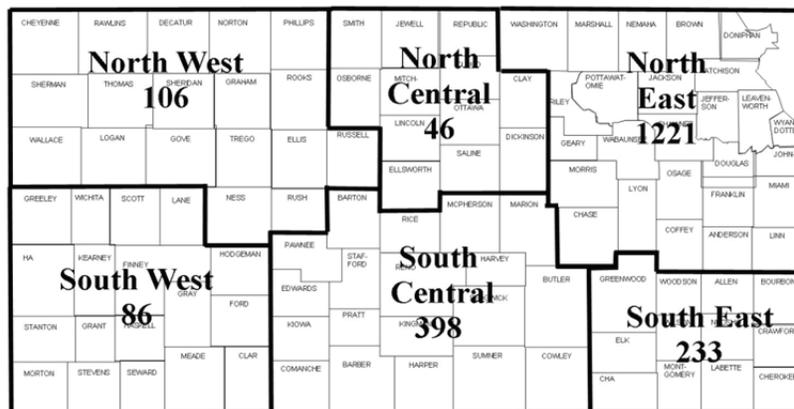


Targeting Children at Risk: What's Next?

Although it is appropriate to celebrate the progress that Kansas has made in the last eight years, it is also important to note that dental disease remains a part of forty-eight percent of Kansas' children lives. The state needs to continue to invest in the prevention of oral disease in order to continue this progress and reduce health disparities. As state and private funding for oral health initiatives is limited, critical analysis of the 2012 data has been done to suggest targeted initiatives that will have the most impact on the populations suffering from the most oral disease. To make this clearer the data will be analyzed by geographic region and by population group (race/ethnicity, and family income).

Before discussing the regional data it is important to make a few points about the sampling protocol. Basic Screening Surveys use a standardized statewide sample that is designed to reflect the population of the state. In 2004 the authors of *Smiles Across Kansas* chose to divide the state into six sections in order to discuss regional differences (see Fig 2 for map below). The 2012 report uses the same regional divisions in order to allow for comparisons, but does so with a few caveats. The standardized sampling was done on a statewide basis, so sparsely populated sections of Kansas had fewer schools screened in both 2004 and 2012. When looking at the regional statistics it is important to note that where the data consists of small sample numbers (less than 100 children) the statistics are more subject to small sample and individual bias and may not be reflective of the entire geographic region. That is not to say that the regional differences are irrelevant, it is just that this information should be looked at more critically than the survey as a whole. Where this is an issue the results are clearly indicated in the table as "unstable".

NUMBER OF CHILDREN SCREENED IN EACH SMILES ACROSS KANSAS REGION (2012)



When looking at differences in the oral health of children living in different regions across Kansas, the northern half of the state had significantly better results than the children in the southern half, especially those in the South West and South East regions.

REGIONAL DIFFERENCES IN SMILES ACROSS KANSAS CLINICAL INDICATORS

Region	% of 3 rd Graders with Untreated Decay	% of 3 rd Graders with Caries Experience	% of 3 rd graders with Sealants
North West*	6	45	48
North Central*	9	54	28
North East	8	44	37
South West*	19	57	21
South Central	10	58	37
South East	12	52	29
OVERALL	9.5	48.4	35.7

*Result may be unstable due to small sample size.

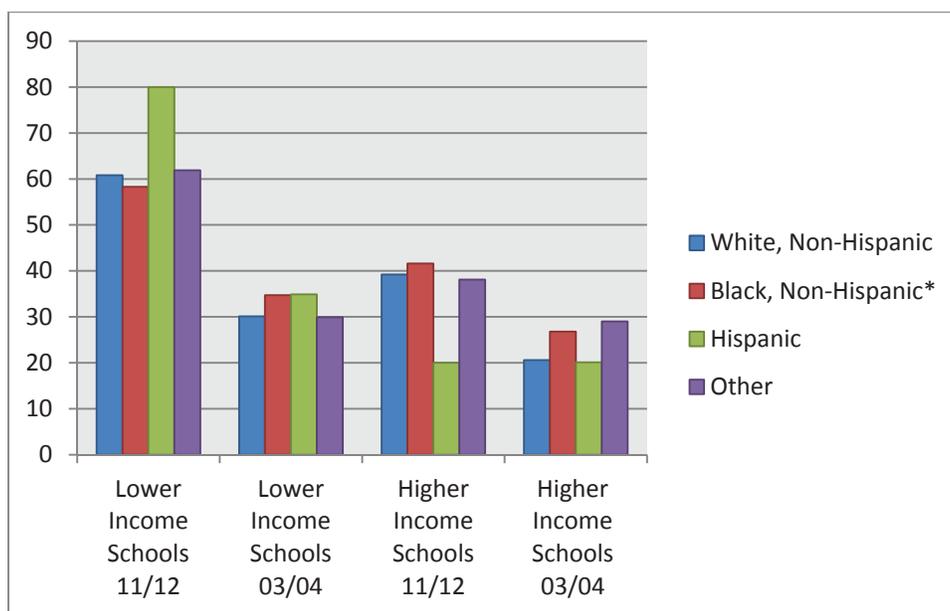
The South West region raises the most concern with the highest decay rate and lowest sealant rate in the state. This region also had the lowest sealant rate (22%) in the 2004 survey. This is a primarily rural part of Kansas with a few urban areas with substantial Latino populations. This region also contains several counties that have been identified as “Dental Deserts” - parts of the state where there are no dentists practicing within a thirty minute driving distance.¹² Although the area contains one of the Dental Hub funded clinics, the area continues to struggle with dental professional recruitment and program implementation. It is possible that problems with access to culturally competent professional care and low/limited oral health literacy could be influencing oral health status for children in this region. Suggestions for improvement could include bilingual oral health literacy and prevention programs, as well as the expansion of school-based sealant programs through the current Dental Hub providers.

The best performing region overall is the North East. This region has seen improvement in all three indicators when compared to the 2004 *Smiles* survey. This is not surprising as this part of the state contains a number of the populous urban centers (Kansas City metro, Topeka, and Lawrence) where a large proportion of Kansas dental professionals practice. All of these cities are fluoridated, and are also home to several community health centers that serve Medicaid and underserved patients. Close proximity to academic institutions and private foundations also allow this area to benefit from public health interventions such as health education campaigns, community based health programs, and charitable events. Although this region is also home to a significant amount of minority underserved populations that will be discussed later in this section, this part of the state has continued to make progress in improving children’s oral health in the last eight years.

One of the most notable regional statistics is that fifty-eight percent of children in South Central Kansas have experienced dental caries. This is the worst region in the state on this measure, a full ten points higher than the state as a whole. South Central Kansas is home to the Wichita metro area, the largest city in Kansas that does not fluoridate their community water supply. As South Central Kansas has many of the same advantages of the North East region (a large dental professional community, multiple safety net dental clinics, local foundations and academic institutions with interests in oral health), the lack of community water fluoridation is a probable causal factor for the significantly higher level of disease in Wichita’s children.

In addition to geography, other demographic and social variables contribute to children’s oral status. Looking specifically at the untreated decay indicator, the schools attended by the 9.4% of children with untreated dental decay were grouped based on the percentage of children that were enrolled in the National School Lunch program. Schools with a high percentage of children who were eligible for free or reduced price lunches were deemed “poorer” schools, and schools with lower numbers were deemed relatively “wealthier”. This grouping has also done in the 2004 study. Comparing the 2012 data to that collected in 2004, the disparity between children with decay that attended relatively wealthier schools and those who attended poorer schools has widened. Children in poorer schools were approximately 66% more likely to have untreated dental decay than those in wealthier ones (p=0.0002). Although the total number of children with untreated decay has decreased, among the children with decay, the gap between high and low income children is widening.

PERCENTAGE OF KANSAS THIRD GRADERS WITH UNTREATED DENTAL DECAY BY RACE/ETHNICITY AND INCOME – COMPARISON OF 2004 TO 2012



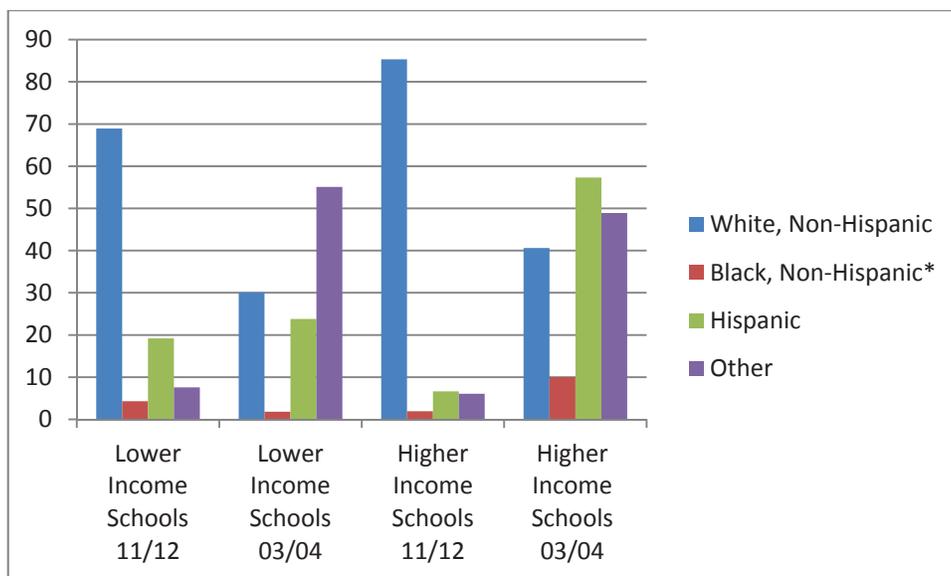
*Result for non-Hispanic Blacks may be unreliable due to small sample in 2012

Among racial/ethnic groups, it is notable that Latino children make up a substantial percentage of children with active dental decay. Because there may be socioeconomic, linguistic and cultural barriers that prevent Latino families from accessing dental services, particular attention to reaching these

individuals is critical to reduce the number of children in need of restorative care. Outreach to these families could include education for pregnant Latina women about oral health and targeted prevention programs for families with young, pre-school aged children. Another suggestion is increasing the opportunities for members of the dental team to receive cultural competency and motivational interviewing training to proactively address the needs of this group of children and their families. Additionally, as these children already have active decay, improving their access to professional dental treatment is important and this may require a combination of strategies. Access to dental programs could include school- and community-based programs that provide early caries intervention as well as increased capacity of safety net providers that are serving this population.

In 2004 a significant lack of sealants among African American children was identified. Of the total number of children surveyed, less than five percent of Black, Non-Hispanic children had sealants. The 2012 data continues to demonstrate that African American children are disproportionately underrepresented among children who have dental sealants. The reasons that this disparity persists remain unclear, but the 2012 data is particularly worrisome as a relatively high number of African American children reported having dental insurance and having seen a dentist in the past year. This means these children and their families have had the opportunity to learn about the value of sealants and an access point to receive the service, but for some reason they still fail to have them placed. One possible explanation for this may be that while they seek care and visit the dentist, they may present too late in the disease process to benefit from sealants and need to receive restorative care instead. The continuation of this disparity may point to an opportunity to increase awareness about the importance of sealants among African American parents, as well the need for dental professionals to be diligent in reaching out to this group of patients early in childhood. This data also suggests it would be extremely valuable to conduct additional studies in the African American community to better understand why families are not receiving sealants.

PERCENTAGE OF KANSAS THIRD GRADERS WITH DENTAL SEALANTS BY RACE/ETHNICITY AND INCOME – COMPARISON OF 2004 AND 2012



RECOMMENDATIONS

Recommendation #1: Oral Health Interventions Should Focus on Disease Prevention; Especially on Young Children at Risk of Dental Decay

Looking at the 2012 *Smiles Across Kansas* survey as a whole, despite the encouraging reductions in dental caries and improvements in access to care, it is important to stress that dental caries is still extremely common among Kansas children. This is not limited to Kansas; dental caries is the most prevalent chronic disease for children across the United States, five times more common than asthma and seven times more common than hay fever.¹³ Dental decay begins young, 27% of children nationally already have decay by age five.¹⁴ Caries rates are higher for children in poor families, in racial and ethnic minority groups, and with special health care needs.¹⁵ Dental decay can begin as soon as a tooth erupts and can progress rapidly, causing pain and disrupting a young child's ability to eat, sleep, play and speak. This high disease prevalence is particularly tragic because it is almost entirely preventable with simple interventions that can be implemented by parents at home, professionally at the dental office and on a community-wide basis. With 48% of Kansas third graders already experiencing dental decay it is clear disease interventions must reach children as early in childhood as possible for them to have maximum impact.

The American Association of Public Health Dentistry, Association of State and Territorial Dental Directors, American Academy of Pediatric Dentistry, American Dental Association, American Academy of Pediatrics, and American Public Health Association recommend that infants receive an oral evaluation within six months of the eruption of the first primary tooth, but no later than 12 months of age. Unfortunately, most children under two do not receive any type of oral health services. In Kansas less than 20% of Kansas Medicaid enrolled children under two received any type of dental service in 2010.¹⁶ In order to reach these children, efforts to work with other pediatric health providers to integrate oral health into children's health programs must continue. Educational programs for physicians, nurses, and other health professions must contain an oral health component. Social service programs such as early childhood centers, Head Start and WIC can also be a way to reach children at risk of dental disease. Kansas has already been ahead of the game in program development and policy in these areas, but the work is not complete if the state wants to continue to see oral health improvement.

Recommendation #2: All Kansas Children Should Drink Optimally Fluoridated Water

Fortifying community water supplies with an optimal level of fluoride can reduce dental decay as much as twenty-five percent in people of all ages and income groups.¹⁷ Although the oral health benefits of water fluoridation are well known, not all Kansans are benefiting from what the Centers for Disease Control and Prevention recognizes as one of the top ten public health interventions of the century.¹⁸ Only 65.1% of Kansans on community water systems are drinking optimally fluoridated water. Although fluoride is a natural mineral found in most water supplies, it is usually necessary for communities to enhance their water to .7 parts per million for their citizens to receive fluoride's oral health benefits. In Kansas, cities such as Kansas City, Topeka, Lawrence, Garden City, Salina, and Pittsburg fluoridate their water. Unfortunately, one of the largest cities in Kansas, Wichita, does not. It is estimated that Wichita

citizens could save four and half million dollars a year in dental treatment costs if they were drinking optimally fluoridated water.¹⁹ In Kansas community water fluoridation is a local issue, and there are efforts underway to educate the public about its benefits. Specifically, public websites such as <http://fluoridefor.us> and <http://www.wichitansforhealthyteeth.org> make the case for fluoridating Wichita's water supply.

Recommendation #3: Increase the Number of School-Based Oral Health Programs

All children should have access to evidence based preventive interventions such as dental sealants and professionally applied fluorides. Children who do not regularly see the dentist often miss the opportunity to benefit from these procedures and develop decay before their first dental visit. Oral health programs in schools can reach children who are not regularly receiving dental care. School-based sealant programs in particular have been shown to reduce dental decay when targeted to schools with high numbers of children at high risk of oral disease.²⁰ Current Kansas state law requires all children to have an oral health screening annually during the course of the school year. The Bureau of Oral Health assists schools in complying with this law, and last year over 140,000 children were screened.²¹ Oral health screening identifies schools with high decay rates, and in 2010 the state received federal funds to start and expand school based sealant programs across Kansas. These sealant programs target schools with high decay rates and children on the National Lunch Program in order to capture Medicaid enrolled and uninsured children with high disease rates. Efforts should continue to expand and sustain these programs across the state in order to reach more children that are not accessing dental care in traditional dental offices and clinics.

Recommendation #4: Target Oral Health Interventions to Children with High Disease Rates

The 2012 *Smiles* data identifies specific populations in Kansas that suffer disproportionately from dental disease. As is the case with other health-related disparities, most measurable differences can be attributed to complex interactions between environmental, individual and behavioral factors. Environmental factors include community water fluoridation, policies that require all children to receive prevention education or screening (e.g., early HeadStart programs require oral screening for all participating children, the Kansas school screening program), the availability of access points to dentist office-based care, and locally adopted standards of care that promote dental hygiene (e.g., elementary schools that provide facilities and the time for children to brush their teeth at school). Individual and behavioral factors include personal dental hygiene, maintaining routine contact with a dental office for recommended preventive care, healthy eating behaviors and biological/developmental factors that influence the oral flora and ability to clean the teeth. We also know that family socioeconomic factors play important roles in children's oral health. Because of the expense of dental care and uneven insurance coverage among various sub-populations of Kansans, not all children have an equal chance of receiving dental care and services. Regardless of a family's desire to receive care, if they cannot find a provider or do not have one that accepts their dental insurance, they may be unable to receive services. All of these various factors contribute, to some degree, to an individual child's risk of developing many oral diseases.

When looking at public health programming, it is important to maximize the limited resources available by targeting interventions to those most impacted by the disease. The 2012 *Smiles Across Kansas* survey has provided many valuable suggestions regarding sub-populations that could most benefit from oral health programs. Specific suggestions include: caries prevention programs in South West Kansas, sealant programs targeting African American children, and culturally competent oral health education for Latino pregnant women and young families. The purpose of the *Smiles Across Kansas* survey is to not only monitor oral health in our state, but also to re-focus our efforts in combating dental disease. Based on the information and suggestions in this report, there are several opportunities for Kansas to work toward even better oral health for our children.



APPENDICES

APPENDIX A: DATA TABLES

Tables 1-7. Demographic Characteristics of Study Participants

Table 1. GENDER				
Gender	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Male	1034	49.57	1034	49.57
Female	1052	50.43	2086	100.00

Frequency Missing = 4

Table 2. RACIAL / ETHNIC BACKGROUND				
Race	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Non-Hispanic White	1509	73.93	1509	73.93
Non-Hispanic Black	104	5.10	1613	79.03
Hispanic	272	13.33	1885	92.36
Other	156	7.64	2041	100.00

Frequency Missing = 49

Table 3. FREE / REDUCED LUNCH PROGRAM ELIGIBILITY				
Eligible?	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	1150	56.87	1150	56.87
Yes	872	43.13	2022	100.00

Frequency Missing = 68

Table 4. DENTAL INSURANCE STATUS				
Insured?	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	280	13.76	280	13.76
Yes	1755	86.24	2035	100.00

Frequency Missing = 55

Table 5. SOCIOECONOMIC STATUS				
Income Groupings	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Low income	1070	51.20	1070	51.20
High income	1020	48.80	2090	100.00

Table 6. RURAL OR URBAN				
Rural or Urban	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Rural	604	28.90	604	28.90
Urban	1486	71.10	2090	100.00

Table 7. REGION				
Region	Frequency	Percent	Cumulative Frequency	Cumulative Percent
North Central	46	2.20	46	2.20
North East	1221	58.42	1267	60.62
North West	106	5.07	1373	65.69
South Central	398	19.04	1771	84.74
South East	233	11.15	2004	95.89
South West	86	4.11	2090	100.00

Tables 8-13. ACCESS TO DENTAL CARE

Table 8. LAST DENTAL VISIT				
Time since last dental visit	Frequency	Percent	Cumulative Frequency	Cumulative Percent
<= 6 months	1424	69.74	1424	69.74
> 6 months < 1 yr	319	15.62	1743	85.36
> 1 yr and < 3 yrs	208	10.19	1951	95.54
> 3 yrs	36	1.76	1987	97.31
Never seen dentist	55	2.69	2042	100.00

Frequency Missing = 48

Past 12 months: Child needed dental care but could not get it?				
Trouble accessing care?	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	1852	92.09	1852	92.09
Yes	159	7.91	2011	100.00

Frequency Missing = 79

Table 10. CARIES EXPERIENCE (TREATED OR UNTREATED)				
Caries?	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	1079	51.63	1079	51.63
Yes	1011	48.37	2090	100.00

Table 11. TREATED DECAY				
Decay?	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	1171	56.03	1171	56.03
Yes	919	43.97	2090	100.00

Table 12. SEALANTS ON PERMANENT 1ST MOLARS				
At least one sealant?	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	1344	64.31	1344	64.31
Yes	746	35.69	2090	100.00

Table 13. TREATMENT URGENCY				
Urgency	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Obvious Problems	1887	90.29	1887	90.29
Early Dental Care	167	7.99	2054	98.28
Urgent Care	36	1.72	2090	100.00

APPENDIX B: PARTICIPATING SCHOOLS

Garnett Elementary	MacArthur Elementary	McKinley Elementary
McKinley Elementary	Westphalia Elementary	Junction Elementary
Logan Elementary	Sunnyside Elementary	Amelia Earhart Elementary
St. Benedict Elementary	Central Elementary	Clark Davidson Elementary
Atchison County Community Elementary	Lincoln Elementary	Leonard D. Seal Elementary
Roseland Elementary School	Highland Park Central Elementary	Onaga Elementary
Jayhawk Elementary	Sunflower Elementary	Garden Plain Elementary
Jennie Wilson Elementary	Garfield Elementary	Appanoose Elementary School
Edith Scheuerman Elementary	Washington Elementary	Sunflower Elementary
Jay Shideler Elementary	Banneker Elementary	Delaware Ridge
Clearwater Elementary	Hoxie Elementary	Frances Willard Elementary
McCarter Elementary	Woodrow Wilson Elementary	Alma Grade School
Eugene Ware Elementary	Flint Hills Intermediate	Minneola Elementary
Ravenwood Elementary	Frankfort Elementary	Spearville Elementary
Langston Hughes Elementary	Westside Elementary	Fowler Elementary
Prairie Park Elementary	Kennedy Elementary	South Barber (Pre K-6)
Woodrow Wilson Elementary	Buckner Performing Arts	Skyline Elementary
Indian Creek Elementary	Lincoln Elementary	Paul B. Cooper Elementary
Circle Benton Elementary	Concordia Elementary	Ross Elementary School
Freeman Elementary	Horton Elementary	Washington Elementary
Community Elementary	Briarwood Elementary	Riverview Elementary
	State Street Elementary	Riverton Elementary



Dear Parent,

Our school has been chosen to take part in the third "Smiles Across Kansas" survey, which will measure the height, weight and dental health of third graders. The school will receive a free Oral Health Education gift for participating.

A dental hygienist who has been trained to conduct this survey will check your child's teeth. *This quick check is not the same as the regular dental check-up from a dentist.* She will also measure your child's height and weight. The survey will be done in a safe, private and respectful manner. No information will be shared with other students.

As you may know, cavities or infections in the mouth can keep a child from doing his or her best in school. Nutrition is also very important. This survey will help the Kansas Bureau of Oral Health and the Kansas Bureau of Health Promotion plan for future health programs in our state.

No personal information will be collected or reported about your child.

Please sign the permission form and return it to your child's teacher tomorrow.

Thank you for helping to make this survey a success!

Sincerely,

A handwritten signature in black ink that reads "Katherine Weno".

Katherine Weno DDS, JD
Director, Bureau of Oral Health

A handwritten signature in black ink that reads "Jennifer Ferguson".

Jennifer Ferguson RDH
Children's Oral Health Program Manager

Consent Form & Parent Questionnaire



Please complete this form and return to your child's teacher **tomorrow**. Thank you.

Child's Name _____ Child's Age _____	
<input type="checkbox"/> Yes, I give permission for my child to participate in the "Smiles Across Kansas" survey.	
<input type="checkbox"/> No, I do not give permission for my child to participate.	
Signature of Parent or Guardian _____	Date _____

Please answer the next questions to help us learn more about access to dental care.

- About how long has it been since your child last visited a dentist? Include all types of dentists, such as orthodontists, oral surgeons, and all other dental specialists, as well as, dental hygienists. (check one)
 - 6 months or less
 - More than 6 months, but not more than 1 year ago
 - More than 1 year ago, but not more than 3 years ago
 - More than 3 years ago
 - Never has been to the dentist
- What was the main reason that your child last visited a dentist? (check one)
 - Went in on own for check-up, examination or cleaning
 - Was called in by the dentist for check-up, examination or cleaning
 - Something was wrong, bothering or hurting
 - Went for treatment of a condition that dentist discovered at earlier check-up or examination
 - Other
- During the past 12 months, was there a time when your child needed dental care but could not get it?
 - No (Go to Question 5)
 - Yes (Go to Question 4)
- The last time your child could not get the dental care he/she needed, what was the **main reason** he/she could not get care? (check one)
 - Could not afford it
 - No insurance
 - No way to get there
 - Didn't know where to go
 - No dentist available
 - Health of another family member
 - Difficulty in getting appointment
 - Wait is too long in clinic/office
 - Dentist did not take Medicaid/insurance
 - Don't like/trust/believe in dentists
 - Not a serious enough problem
 - Dentist hours are not convenient
 - Speak a different language
 - Other reason
- Do you have any kind of insurance that pays for some or all of your child's DENTAL CARE? Include insurance obtained through employment or purchased directly, as well as government programs like Medicaid.
 - No
 - Yes
- Is your Child Hispanic or Latino?
 - No
 - Yes
- Which of the following best describes your child? (check all that apply)
 - White
 - American Indian/Alaska Native
 - Asian
 - Native Hawaiian/Pacific Islander
 - Black/African American
- Is your child eligible for the free or reduced price lunch program?
 - No
 - Yes

THANK YOU FOR PARTICIPATING IN "Smiles Across Kansas"

Site Code/Screener _____ ID# _____





Dental Screening Results

Child's Name _____

Dear Parent or Guardian,

As part of the Smiles Across Kansas 2012 survey, your child received a dental screening at school. No x-rays were taken and the screening does not replace an in-office dental examination by your family dentist. The results of the screening indicate that:

_____ Your child has no obvious dental problems but should continue to have routine examinations by your family dentist.

_____ Your child has some teeth which should be evaluated by your family dentist. Your dentist will determine whether treatment is needed.

_____ Your child has some teeth which appear to need immediate care. Contact your family dentist as soon as possible for a complete evaluation.

If you do not have a family dentist and you need help in obtaining dental care, you may contact your school nurse for a referral list:

Comments: _____

APPENDIX D: REFERENCES

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